least, it is not unreasonable to suppose that these small birds must have availed themselves. to a great extent, of the rigging of passing vessels, or have been brought to this country in cages, from which they have been allowed, accidentally or designedly, to escape."

As regards the nomenclature and arrangement of the birds contained in his lists, Mr. Harting has not, we think, been quite so successful as in his accounts of their range and of their occurrences in the British Islands. The American Cuckoos are certainly not referable to typical *Cuculus*, and ought to stand as *Coccyzi*. *Erithacus* (not *Erythaca*) is the correct spelling for the generic name of the Red-breast, as any Latin dictionary will show. The Hirundinidæ are typical Passeres, and should not be placed between the Bee-eaters and Swifts, as Mr. Harting proposes (p. 35). The Ibises should not be referred to the family "Tantalidæ." *Tantalus* is nothing more or less than a form of Stork, and should be placed under the Ciconiidæ; whilst the Spoonbills (arranged by Mr. Harting as an independent family, really appertain to the group of Ibises (Ibididæ). The interposition of the Cranes between the Storks and Herons is most unnatural. There can be no question that the nearest relatives of the *Grues* are the Bustards and Rails. What can be the object of inventing such a family as the Petrocinclidæ (p. 99)? The Spine-tailed Swift is by no means a *Cypselus*, as Mr. Harting calls it (p. 127), but belongs to a different sub-division of the Cypselidæ, distinguished by the structure of its feet. Lastly, when such excellent genera as *Coccyzus* and *Chætura* are rejected, it is going a little too far to follow Coues and Bonaparte in adopting such a mere section of *Procellaria* as *Æstrelata*.

It would not be difficult to extend our criticisms in this direction, but it is only fair to say that such minor defects will not seriously interfere with the great usefulness of Mr. Harting's "Handbook of British Birds."

OUR BOOK SHELF

The Clematis as a Garden Flower. By Thomas Moore, F.L.S., and George Jackman, F.R.H.S. (London: Murray.)

A NOTICE of a book of this kind may at first sight seem out of place in a scientific periodical. Those stray threads, however, of biological investigation which have at various times attracted curiosity rather than study, and have, at any rate, been for the first time methodised in Darwin's "Animals and Plants under Domestication," will depend upon works of this kind for their further development. It is hardly generally understood that the production of what are called in popular language, "Florists' flowers" rests on two perfectly different principles and methods of procedure. The one is obvious enough; it may be called an accelerated natural selection, consisting as it does of merely growing on a very large scale the plant which it is desired to improve, and then selecting repeatedly from the sports which are sure to occur those which conform most nearly to some preconceived standard. But the other and far less thoroughly understood method consists in destroying the fixity of ancestral type by persistent and involved hybridising. At first the hybrids are, as might be expected, intermediate between their parents; after a time, however, the seedlings from crosses exhibit variations of habit and characters which could not possibly be expected, and which, consequently, make the business of raising new horticultural varieties almost as speculative as a lottery. Florists' flowers are, consequently, the expression of the action of laws of which we at present know next to nothing, but the investigation of which is of the highest interest. The only possible way of pursuing it is obviously the careful comparison of a hybrid offspring with its various progenitors, somewhere amongst which the latent characters must lurk concealed which reveal themselves often so unexpectedly. A book of this kind is naturally, therefore, turned to in the expectation of its supplying facts of the kind required. A difficulty, however, diminishes, as in other cases, its value in this respect. Horticulturists, as a body, are far from unsympathetic towards scientific inquiry; but business operations cannot always be carried on in a scientific spirit. When crosses are made for the purpose of producing new forms, it is generally done on a large scale, and quite promiscuously, merely avoiding what practical tact points out as undesirable strains. No record is kept, and the seeds are often sown in a single batch; consequently, if a striking variety makes its appearance, it is often all but impossible, as for trade purposes it is not necessary, to assign to it its proper ancestry. Take, for example, a garden *Clematis*, named after its producer, *C. Jackmanni* (botanically, by the way, a hardly legitimate appellation). All that can be certainly said of it is that, amongst others, *C. Viticella* and *C. lanuginosa* hold a prominent place in its ancestry. The first is a European species producing an abundance of moderate-sized, rather dark-coloured flowers. The latter is a native of Japan, producing large pale-coloured flowers rather sparingly; it is the parent, more or less remote, of most of the garden hybrids raised within the past ten years. It is from these sources, therefore, with probability, that *C. Jackmanni* derives its good qualities. In another hybrid, where, it having been raised by an amateur horticulturist, the history is known, the relation of the qualities of parents and offspring is all but inexplicable. Mr. Anderson Henry crossed *C. lanuginosa* already alluded to, which bears pale lilac flowers as much as eight inches across, with *C. Fortunei*, also of Japanese origin, with white flowers rather smaller and of a different character. He obtained, amongst other forms, *C. Lawsoniana*, which possesses flowers as much as *nine and a half* inches across, and of a *rosy purple*; yet it could not possibly owe either its size or colour to its immediate parents. That questions of this kind should be dealt with in what is after all a purely horticultural work, is a striking proof of how little reason there really is to despair about the general interest excited by scientific work. The whole of horticulture is, in a sense, a vast field of biological research, with results all ready to hand. It is due entirely to Mr. Darwin that the attempt has been made to gather them in. Perhaps the authors will hardly care, at least at present, to have their book stigmatised as too scientific. It contains all that can be desiderated of the pure gardening of its subject, and is capitally illustrated with plain and coloured illustrations. W. T. T. D.

Synopses of Subjects taught in the Geological Class, College of Physical Science, Newcastle-on-Tyne, University of Durham. By David Page, LL.D., F.G.S. (Edinburgh and London: Messrs. Blackwood.)

THESE Synopses are most comprehensive, and will, we are sure, be of some value to students and science-teachers. They embrace the subjects taught in the junior and senior divisions of Dr. Page's class. In the former division the subjects follow each other thus:—Physical Geology, Elements of Biology, Physical Geology and Lithology, and Descriptive and Historical Geology. Under the heading of "Senior Division," we find Physical Geology and Mineralogy, Mineralogy, Descriptive Geology and Palæontology, Palæontology, and Economic Geology. The Synopses are characterised by the same clearness and precision for which Dr. Page's text-books are so justly noted. On glancing over the pages, we were surprised to find in the "Tabular Synopsis of European For-

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mations" a "Metamorphic System" underlying the Laurentian, and an "Azoic Cycle," preceding the Palæozoic. Now there may be a Metamorphic System of older date than the Laurentian rocks, and strata deposited during "Azoic" times may also exist; but at present we have no knowledge either of the one or the other. Murchison, we thought, had settled once and for ever that the crystalline schists of the Scottish Highlands were of post-cambrian age. J. G.

LETTERS TO THE EDITOR

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. No notice is taken of anonymous communications.*]

The National Herbarium

PERMIT me, in your columns, to give shortly the grounds upon which I made the statement that no herbarium of any kind existed at Kew Gardens during the time of the Aitons, but that the Banksian Herbarium was often, and for a long time systematically, used for naming the Kew plants (NATURE, Oct. 3, 1872, p. 450), which statement is thus dealt with by Dr. Hooker (NATURE, Oct. 24, 1872, p. 516):—"Nor was the naming of the Kew plants carried out in London, as is supposed. There was a large herbarium in constant use at the Royal Gardens at the very period alluded to, the breaking up of which, when it was proposed to give up the Gardens, necessitated the formation of another."

Instead of my statement being a supposition, it was based on the following data:—1. The lists of the plants sent up from Kew Gardens to be named by Solander when Curator of the Banksian Herbarium, which were duly entered in the "garden book," still preserved in the Botanical Department here. 2. The continuance of this practice to a recent date, as evidenced by the following article in the engagement between Mr. Brown (Solander's successor in the Banksian Herbarium) and the trustees of the British Museum when he became keeper of this department in June 1872, "that Mr. Brown have full liberty to assist the Superintendent of the Royal Botanical Gardens at Kew, in like manner as during the lifetime of Sir Joseph Banks." 3. The specific statements in several official reports of the late Sir W. J. Hooker, such as this from one dated 31st December, 1854:—"Till 1853 our garden was utterly destitute of the two former appendages," viz., an herbarium and library.

I was surprised to read Dr. Hooker's declaration that his evidence is "unequivocally opposed" to the transfer of the collection of dead plants from the British Museum to Kew. In this case I have completely misunderstood his position in the repeated attempts that have been made to destroy the scientific position of the National Herbarium at the British Museum. In 1858, when the trustees of the Museum were induced to inquire into the necessity for the existence of the herbarium in London, they examined Dr. Hooker among other witnesses, and in their finding they say, "Sir W. Hooker, Dr. J. Hooker, and Dr. Lindley have given reasons in favour of the removal of the collections from the British Museum to Kew, with the view of rendering that establishment more complete." Other testimony, however, had more weight, and so they were "unanimously of opinion that it is not desirable to recommend the translation of the botanical collection from the British Museum to Kew." (Return, House of Commons, 1859, No. 126, p. 12.) Ten years after, in the memorial presented through the Board of Works to the trustees, Dr. Hooker proposed that a "Reference Herbarium," consisting of the "British Museum Herbarium, *minus* the specimens required for Kew" should be kept at the Museum for the use of "botanists, geologists, amateurs and others resident in London, or passing through it, who may want information which it would not be worth their while going to Kew to procure." And more recently, in his evidence before the Science Commissioners, Dr. Hooker repeats this proposal with somewhat more of detail. The great scientific working herbarium to which all botanists should come should be at Kew (Q. 6,683). To secure this, "the two herbaria should be arranged under one head" (Q. 6,685). "I could bring the collection under one system" (Q. 6,730). It would be the duty of the first herbarium in the country (*i.e.* Kew) to supply the British Museum (Q. 6,745). The specimens, "on their arrival at the British Museum, could be put into their places by the officers there, the operation being as simple as that of putting books on a shelf;" and in future "a subordinate could intercalate the additions" (Q. 6,732).

No doubt these proposals (excluding that made in 1858, on the death of Mr. Brown, and before the appointment of Mr. Bennett), contemplate the maintenance of a collection of dead plants in London. But a collection from which "all specimens of interest only to the scientific botanist have been removed to Kew" (NATURE, vol. iii. p. 401), and consisting only of the worthless duplicates of the two amalgamated herbaria, would be utterly useless for scientific purposes, and its maintenance would unquestionably be a waste of public money.

I will only add, that there is certainly nothing to prevent Dr. Hooker "recruiting" the British Museum Herbarium from that at Kew to any extent, at once, and without the intervention of a Royal Commission. It is quite certain that the trustees and my predecessors, like myself, would have welcomed sets of the numerous collections, made at the expense of the British Government, which have been distributed from Kew to "America, Paris, Austria, Prussia, Hanover, Holland," &c., but none of which have ever been sent to the National Herbarium at the British Museum! W. CARRUTHERS

British Museum, Dec. 2

THERE is no inconsistency between Sir W. Hooker's statement, quoted by Mr. Carruthers, that "till 1853 our garden was utterly destitute" of an herbarium and library, and mine that in the Aitons' time there was a large herbarium here, kept up for naming the garden collections. Sir W. Hooker of course referred to the period during which the gardens had been public property. The herbarium in question was broken up when Kew ceased to be a private establishment. The words quoted by Mr. Carruthers ought hardly in fairness to be detached from the context. Sir W. Hooker's meaning was, of course, that the gardens, as a public department, possessed, till 1853, no official herbarium or library. He goes on to speak of his own private ones, by means of which the work of the garden had been carried on ever since he became director, and which, having at his death been purchased by the Government, form, with those presented by Mr. Bentham and others, the foundation of the present collections.

It is necessary to mention this, as otherwise Mr. Carruthers' quotation might lead anyone unacquainted with the facts to suppose that the work of Kew Gardens up to 1853 had been conducted without any herbarium or library whatever.

Mr. Carruthers is mistaken in implying that I ever suggested the supplying the British Museum with "worthless duplicates" from Kew; and equally so in stating that "none" of the collections distributed here have ever been sent to the British Museum. Such an assertion is no encouragement to send more. Nor does the fact that no return of any kind has ever been made by the British Museum for some thousands of specimens that have been sent to it from Kew, offer much inducement to continue such gifts. It is the clear duty of this, as of other similar establishments, to distribute its duplicates to such institutions as exert themselves to make a suitable return. This is the case with the Herbaria of America, Russia, Prussia, Holland, &c., and, in fact, with all kindred establishments with which Kew corresponds. It is the acquisition by this means of authenticated specimens from almost every seat of botanical research, which more especially gives to the National Herbarium of Kew Gardens the incomparable position it now holds. JOS. D. HOOKER

Royal Gardens, Kew, Dec. 3

The Meteoric Shower

WHILE the observations of the recent meteoric shower continue to attract general attention, the following notes of some descriptions of the display that have reached me, which will contribute useful results for comparison with published accounts of the phenomenon that have already appeared, will, perhaps, be interesting to your readers:—

On the nights immediately preceding that of the star-shower the sky was at some places unclouded, and observations of meteors were recorded. The large meteor described in a recent

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